

NOTES ON THE TYPE-SERIES OF *DROSOPHILA COFFEATA* WILLISTON,
WITH DESCRIPTION OF A NEW NEOTROPICAL SPECIES OF THE
SUBGENUS *DROSOPHILA* (DIPTERA, DROSOPHILIDAE).

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ABSTRACT

The type-series of Drosophila coffeata Williston is analyzed and proved to be constituted by three different species belonging to two different genera.

A male lectotype and 7 paralectotypes (5 ♂, 2 ♀) are designated for D. coffeata which is redescribed and illustrated.

One quite distinctive male syntype, closely related to D. castanea Patterson & Mainland, is figured and described as Drosophila (Drosophila) pedroi, sp. n.

While analyzing the type collection of Drosophilidae of the American Museum of Natural History (AMNH), I found two male specimens labelled as "type" of *Drosophila coffeata* Williston. I have carefully studied them and noticed that, although similar, they differed from each other with respect to the shape and size of the carina and distinctive features of the arista. The comparative analysis of their genitalia confirmed my surmise that such syntypes were not conspecific.

Through the courtesy of Dr. B.H. Cogan, I was able to examine 7 syntypes (5 ♂, 2 ♀) deposited in the British Museum (Natural History) (BMNH) and found all of them to be conspecific with one of the two specimens of the AMNH cited above.

Dr. G.W. Byers of the Snow Entomological Museum (SEM) kindly loaned an additional male syntype (Byers *et al.*, 1962), which was proved to be not congeneric with the previously analyzed specimens.

Williston (1896) described *D. coffeata* based upon "numerous specimens" from St. Vincent. I think, there can be little doubt that the strongly carinated specimens deposited in the BMNH represent most of the syntypes upon which Williston based his description of *D. coffeata*.

I selected one male out of the seven specimens of the BMNH as lectotype, and the 6 remaining syntypes together with one of those deposited in the AMNH as paralectotypes, and used the males to redescribe *D. coffeata* Williston.

Label data attached to each syntype specimen are cited as given (my own notes are included parenthetically). A slash indicates a label change.

In preparing the postabdomen I followed Wheeler & Kambysellis (1966). The terminology used for the male genitalia is modified after Hsu (1949) and Kaneshiro (1969); for details see Vilela (1983).

✓ *Drosophila coffeata* Williston
(Figs. 1a,b; 2a-e)

Drosophila coffeata Williston, 1896: 409.

Type-Material. Lectotype male (here designated), labelled: "Cotype/Windware side, St. Vincent, W.I. H.H. Smith / W. Indies, 1907-66 / *Drosophila coffeata* Will. / LECTOTYPE *Drosophila coffeata* Williston by C.R. Vilela", in BMNH, London (Fig. 1a, b). The remaining known specimens of the original type-series here designated as paralectotypes are as follows: four males and two females with same locality data as lectotype, in BMNH; one male labelled: "Am. Mus. Nat. Hist., Dept. Invert. Zool., No.

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20347/TYPE, No. (nothing printed), A.M.N.H. /1500 feet", in AMNH (New York City). The postabdomen of the last specimen has been removed, dissected, and placed in an attached microvial. Type locality: Windward side, Saint Vincent, West Indies.

External characters of imagines σ . Arista with 3-4 dorsal and 2 ventral branches plus terminal fork; hair-like branches absent. Antennae brown. Front brown, pollinose; ocellar triangle darker, anterior region and orbits posteriorly lighter than front. Second oral as long as first. Face brown. Carina well-developed, bell-shaped, sulcate. Palpi pollinose, light brown, with bristles on ventral surface. Cheeks light brown, their greatest width $1/4$ greatest diameter of eyes. Eyes red, with very short black piles.

Acrostichal hairs in 8 irregular rows. No prescutellars. Anterior scutellars convergent. Mesonotum coffee brown, with two indistinct lighter longitudinal stripes medially to dorsocentral rows. Scutellum coffee brown, pollinose. Pleurae dark brown. Sterno index about 0.7. Halteres brown. Coxae, femora, tibiae and tarsi brown. Apical bristles on first and second tibiae, preapical on all three.

Abdomen brown, each tergite with a posterior, wide coffee brown band.

Wings clear. Costal index about 2.6; 4th vein index about 1.6; 5x index about 1.2; 4c index about 0.9; M index about 0.4. Apex of first costal section not black, with two slightly enlarged bristles. Third costal section with heavy bristles on its basal $2/3$.

Wing length about 2.7 mm.

Genitalia σ . Epandrium with about 28 lower and none upper bristles. Cerci fused at lower half. Surstylus with about 10 primary teeth, 4 secondary teeth and 12 marginal bristles (Fig. 2a). Hypandrium as long as epandrium; conchae of hypandrium bare (Figs. 2a, b). Aedeagus long, curved, micropubescent at posterior ventral margin, slightly incised at tip; dorsal cleft about $1/3$ of length. Aedeagal apodeme laterally flattened. Ventral rod about half length of gonopod. Gonopod bare, linked to concha of hypandrium by membranous tissue (Figs 2c, d). Phallosomal index about 2.3.

♀ . Not studied.

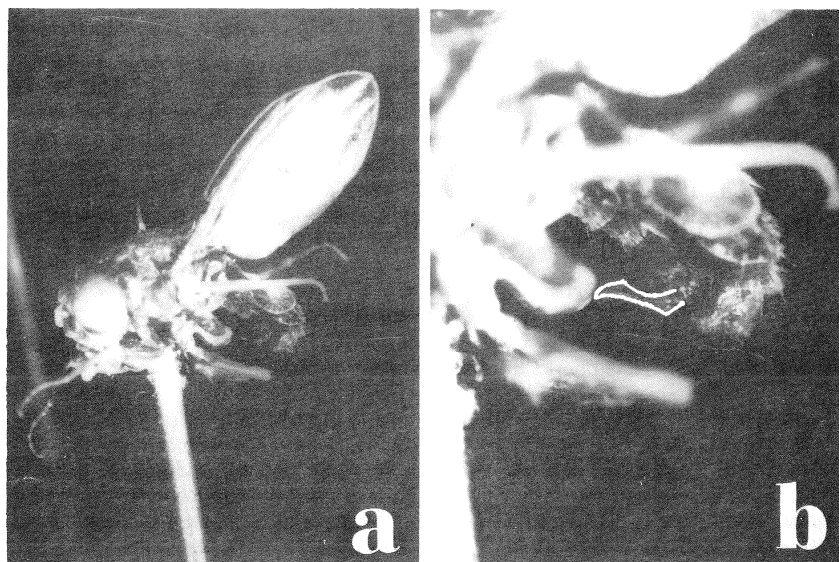


Figure 1. *Drosophila coffeata* Williston: a, lateral aspect of the lectotype (BMNH); b, same, close-up with the aedeagus outline inked in.

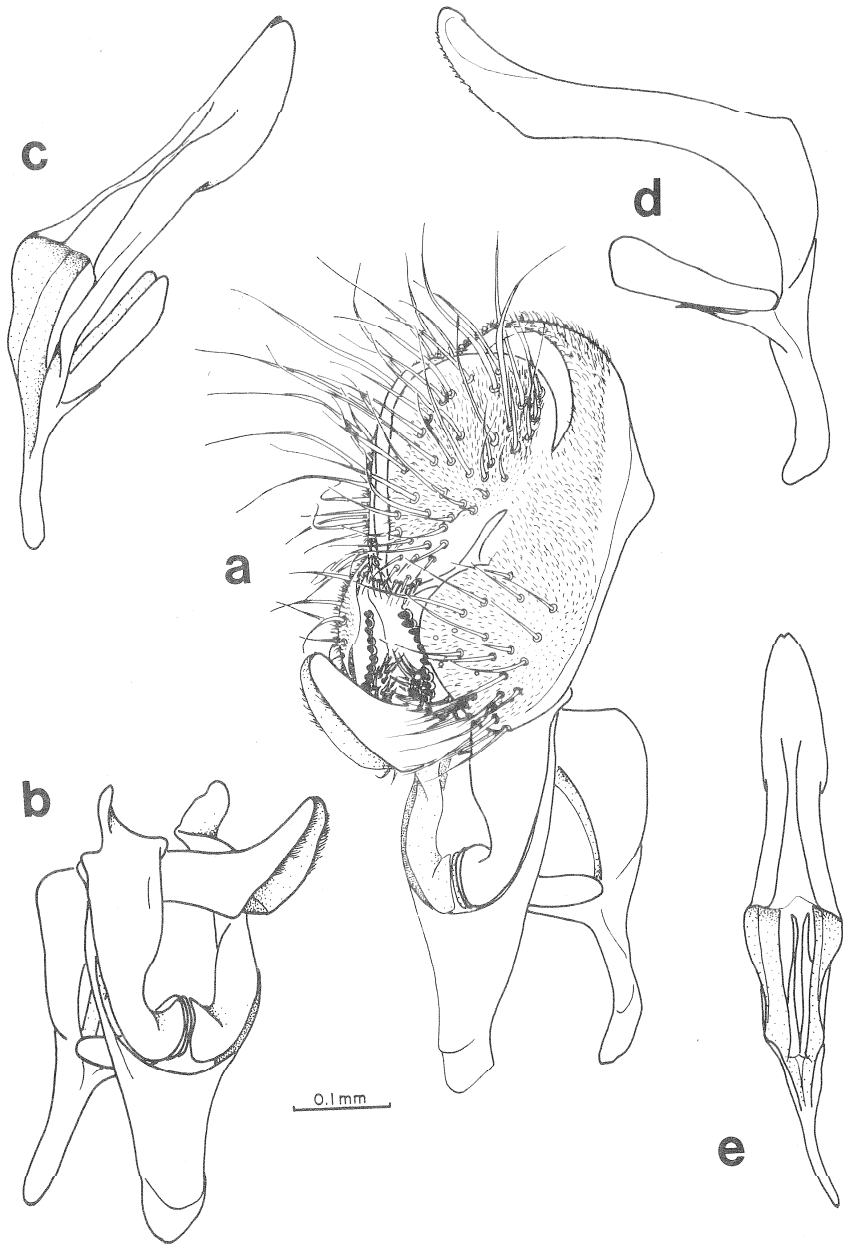


Figure 2. *Drosophila coffeata* Williston (paralectotype, AMNH): a, male genitalia, lateroblique aspect; b, internal male genitalia, lateroblique aspect; c-e, aedeagus, several aspects.

Eggs, puparia and chromosomes. Unknown.

Relationship. It seems to belong to the subgenus *Drosophila* and to be related to *D. castanea* Patterson & Mainland, but further studies, especially with the internal soft parts, will be necessary to confirm this.

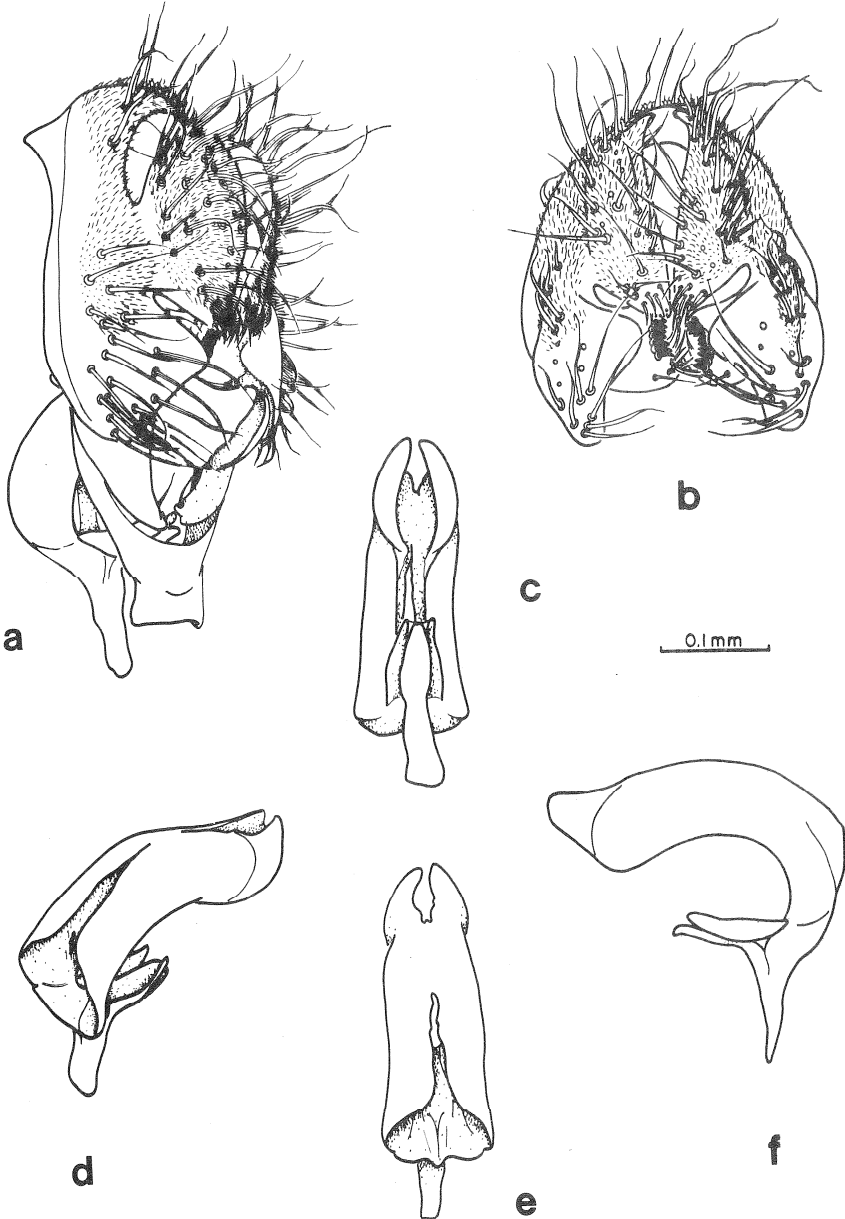


Figure 3. *Drosophila (Drosophila) pedroi*, sp. n. (holotype, AMNH): a, male genitalia, lateroblique aspect; b, external male genitalia, posterior aspect; c-f, aedeagus, several aspects.

Distribution. The type locality is the only site where this species has been collected.

Remarks. Two male specimens of the original type-series do not belong to the same species as do the other syntypes. One of them is described below under the binomial *Drosophila pedroi*. The other one which is deposited in the SEM (Lawrence, Kansas, USA) and labelled: "1500 feet / St. Vincent / TYPE *Drosophila coffeata* Will." is probably a member of the genus *Stegana* Meigen, as shown by its wings and male genitalia, and should no longer be considered as a syntype of *D. coffeata* Williston. As the latter specimen lacks its head, I was not able to confirm its generic position and I have just added to it the following label: "*Stegana?*, C.R. Vilela det., v. 1982".

Although the number of dorsal and ventral branches of arista show some intraspecific variation, its approximate average value is of some importance in delimiting certain groups of species, and it is therefore included in the species descriptions. However, in addition to the main branches, the arista bears on its inner side, a few short, hair-like branches which, as far as I know, have never been taken into account. I would like to pointed out that *D. coffeata* is the first Neotropical species of the genus *Drosophila* known to me in which the short branches of the arista are absent.

✓ ***Drosophila (Drosophila) pedroi*, sp. n.**
(Figs. 3a-f)

Drosophila coffeata Williston (in part), 1896: 409.

Type-Material. Holotype male, labelled. "*Drosophila coffeata* Will. /Am. Mus. Nat. Hist., Dept. Invert. Zool., No. 20347/TYPE: No. (nothing printed), A.M.N.H. / (black label) /1000 feet/ Holotype *Drosophila pedroi* ♂", in AMNH (New York City). The postabdomen of the holotype has been removed, dissected and the parts placed in an attached microvial. Type locality: Windward side, Saint Vincent, West Indies.

External characters of imago ♂. Arista with 4 dorsal and 2 ventral branches plus terminal fork; hair-like branches present. Antennae yellowish brown. Front brown, pollinose; ocellar triangle darker and orbits posteriorly lighter than front. Orbital bristles broken. Second oral about 1/2 of first. Face yellowish brown. Carina narrow below, sulcate. Palpi pollinose, light brown with bristles on ventral surface. Cheeks light brown, their greatest width 1/5 greatest diameter of eyes. Eyes red, with short black piles.

Acrostichal hairs in 8 irregular rows. No prescutellars. Anterior scutellars convergent. Mesonotum brown, with two indistinct longitudinal stripes on the row of dorsocentrals. Scutellum yellowish, pollinose. Pleurae brown, medially lighter. Sterno index about 0.6. Halteres brown. Coxae, femora, tibiae and tarsi brown. Apical bristles on first and second tibiae, preapical on all three.

Abdomen yellowish brown, each tergite with a posterior, medially interrupted, dark brown band.

Wings clear. Costal index about 2.6; 4th vein index about 1.6; 5 x index about 1.2; 4c index about 0.9; M index about 0.5. Apex of first costal section with two enlarged bristles. Third costal section with heavy bristles on its basal 2/3.

Wing length about 2.5 mm.

Genitalia ♂. Epandrium with about 20 lower and 3 upper bristles. Cerci fused at lower 2/3. Surstylus with about 10 primary teeth and 8 marginal bristles (Figs. 3a, b). Hypandrium shorter than epandrium; conchae of hypandrium bearing one anterior bristle (Fig. 3a). Aedeagus tube-shaped, strongly curved, deeply incised at tip; dorsal cleft about 2/3 of length. Aedeagal apodeme dorsoventrally flattened. Ventral rod slightly longer than gonopod. Gonopod bare, linked to concha of hypandrium by membranous tissue (Figs. 3d-f). Phallosomal index about 3.0.

♀, eggs, puparia and chromosomes - Unknown.

Relationship. Belongs to the subgenus *Drosophila*. It is closely related to *D. castanea* Patterson & Mainland, from which it differs chiefly in the shape of aedeagus. The male holotype of *D. castanea*, loaned to me by the National Museum of Natural History, Smithsonian Institution (Washington, D.C.), has been analyzed with regard to its genitalia and will be subject of a forthcoming paper.

Distribution. The type locality is the only site where this species has been collected.

Etymology. The species epithet *pedroi* is a genitive patronym honoring Dr. Pedro Wygodzinsky, whose assistance is gratefully acknowledged.

Remarks. The holotype of *D. pedroi*, sp.n., originally belonged to the type-series of *D. coffeata* Williston with which it somewhat resembles both in external and internal morphology. However, it can be distinguished from the remaining syntypes of *D. coffeata* in having lighter color pattern, carina not broadly below and quite distinctive male genitalia and arista.

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